

We Claim:

1. A method of producing a nodulation inoculant containing reduced amounts of cell density factor (CDF) comprising the addition of iron to growth medium for a nodulation inoculant in amounts sufficient to reduce the concentration of CDF.
2. A method of screening an extract or cell culture supernatant for the presence of an IND-1, IND-2, CDF, or CDF-like compound comprising:
 - a) obtaining an extract or cell culture supernatant;
 - b) contacting a host cell transformed with one or more genetic constructs containing a reporter enzyme selected from the group consisting of *nolA-lacZ*, *nodY-lacZ*, *nodC-lacZ*, or *nodD-lacZ* with said extract or cell culture supernatant; and
 - c) analyzing the contacted host cell for the modulation or expression of said *nolA-lacZ*, *nodY-lacZ*, *nodC-lacZ*, or *nodD-lacZ* reporter enzyme.
3. The method according to claim 1, wherein said iron is Fe^{3+} .
4. The method according to claim 1, wherein said nodulation inoculant comprises *Bradyrhizobium* species.
5. The method according to claim 1, wherein said nodulation inoculant comprises *Bradyrhizobium japonicum*.
6. The method according to claim 1, wherein medium is liquid.
7. The method according to claim 1, wherein said iron is added prior to the addition of the nodulation inoculant.

8. The method according to claim 1, wherein said iron is added simultaneously with the nodulation inoculant.

5 9. The method according to claim 1, wherein said iron is added after the nodulation inoculant.

10 10. The method according to claim 1, wherein said iron is added to the nodulation inoculant and the iron containing inoculant is added to the medium.

11. The method according to claim 1, wherein said iron is separately added to the nodulation inoculant and the medium.

12. The method according to claim 1, wherein the iron has a concentration of at least about 0.5 μ M or at least about 0.1M.

13. The method according to claim 1, wherein the iron has a concentration that ranges from 0.5 μ M to 1M.

14. An isolated compound selected from the group consisting of IND-2 and CDF.

20 15. A composition comprising a soil additive or conditioner and a compound selected from the group consisting of IND-1, IND-2, and CDF

16. The composition according to claim 22, wherein the compound is IND-1 (bis-ethyl-hexyl-ester phthalate).

25 17. An isolated bacterial cell defective in recognition of NolA inducer compounds.

18. The isolated bacterial cell according to claim 21, wherein said bacterial cell contains a defect in the *nwsB* gene.

19. A method of suppressing the nodulation activity of indigenous nodulating bacterial cells comprising the addition of one or more NolA inducers to soil containing said indigenous nodulating bacterial cells.

20. The method according to claim 19, wherein said NolA inducer is bis-ethyl-hexyl-ester phthalate (IND-1/BEHP), IND-2, or CDF.

21. A composition comprising a carrier and a nodulation inoculant produced according to the process of claim 1.

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

200

210

220

230

240

250

260

270

280

290

300

310

320

330

340

350

360

370

380

390

400

410

420

430

440

450

460

470

480

490

500

510

520

530

540

550

560

570

580

590

600

610

620

630

640

650

660

670

680

690

700

710

720

730

740

750

760

770

780

790

800

810

820

830

840

850

860

870

880

890

900

910

920

930

940

950

960

970

980

990

1000

1010

1020

1030

1040

1050

1060

1070

1080

1090

1100

1110

1120

1130

1140

1150

1160

1170

1180

1190

1200

1210

1220

1230

1240

1250

1260

1270

1280

1290

1300

1310

1320

1330

1340

1350

1360

1370

1380

1390

1400

1410

1420

1430

1440

1450

1460

1470

1480

1490

1500

1510

1520

1530

1540

1550

1560

1570

1580

1590

1600

1610

1620

1630

1640

1650

1660

1670

1680

1690

1700

1710

1720

1730

1740

1750

1760

1770

1780

1790

1800

1810

1820

1830

1840

1850

1860

1870

1880

1890

1900

1910

1920

1930

1940

1950

1960

1970

1980

1990

2000

2010

2020

2030

2040

2050

2060

2070

2080

2090

2100

2110

2120

2130

2140

2150

2160

2170

2180

2190

2200

2210

2220

2230

2240

2250

2260

2270

2280

2290

2300

2310

2320

2330

2340

2350

2360

2370

2380

2390

2400

2410

2420

2430

2440

2450

2460

2470

2480

2490

2500

2510

2520

2530

2540

2550

2560

2570

2580

2590

2600

2610

2620

2630

2640

2650

2660

2670

2680

2690

2700

2710

2720

2730

2740

2750

2760

2770

2780

2790

2800

2810

2820

2830

2840

2850

2860

2870

2880

2890

2900

2910

2920

2930

2940

2950

2960

2970

2980

2990

3000

3010

3020

3030

3040

3050

3060

3070

3080

3090

3100

3110

3120

3130

3140

3150

3160

3170

3180

3190

3200

3210

3220